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Notice of Allowability

Application No.	Applicant(s)
10/807,968	THOMAS, DAVID
Examiner	Art Unit
Chun-Kuan (Mike) Lee	2181

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. This communication is responsive to 08/20/2007.
2. The allowed claim(s) is/are 1-5, 7-10 and 12-16.
3. Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All
 - b) Some*
 - c) None
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

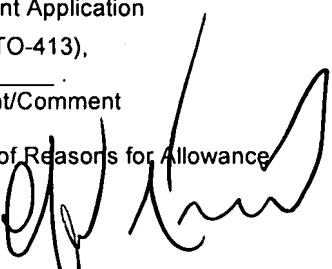
Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
1) hereto or 2) to Paper No./Mail Date _____.
 - (b) including changes required by the attached Examiner's Amendment / Comment or in the Office action of
Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. Notice of References Cited (PTO-892)
2. Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____.
4. Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. Notice of Informal Patent Application
6. Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. Examiner's Amendment/Comment
8. Examiner's Statement of Reasons for Allowance
9. Other _____.


ALFORD KINDRED
PRIMARY EXAMINER

DETAILED ACTION

CONTINUED EXAMINATION UNDER 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 08/20/2007 has been entered.

I. INFORMATION CONCERNING OATH/DECLARATION

Oath/Declaration

2. The applicant's oath/declaration has been reviewed by the examiner and is found to conform to the requirements prescribed in 37 C.F.R. 1.63.

II. INFORMATION CONCERNING DRAWINGS

Drawings

3. The applicant's drawings submitted are acceptable for examination purposes.

III. EXAMINER'S AMENDMENTS

OPTIONS AVAILABLE TO THE APPLICANT

4. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR § 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

AUTHORIZATION FOR THE CORRECTIONS BY THE EXAMINER

5. Authorization for this examiner's amendment was given in a telephone interview with Lisa L.B. Yociss, having Reg. No. 36,975, on August 30, 2007. Accordingly, since a complete record of the interview has been incorporated in the instant examiner's amendment, no separate interview summary form is included in the instant office letter MPEP § 713.04.

CORRECTIONS MADE IN THE APPLICATION

6. The application has been amended as following:

IN THE CLAIMS:

The below described amendments to the claims are necessary to further clarify the claimed invention.

In claim 1, line 15, "...if the CRC engine determines that an end one of said plurality of blocks..." should be replace with -...when the CRC engine determines that an end one of said plurality of blocks...-.

In claim 1, lines 36-37, "...and if said second cyclical redundancy code corresponding to the given block is equal to..." should be replace with -...and when said second cyclical redundancy code corresponding to the given block is equal to...-.

In claim 7, line 13, "...if said CRC engine determines that an end one of said plurality of blocks..." should be replace with -...when said CRC engine determines that an end one of said plurality of blocks...-.

claim 7, lines 29-30, "...when writing to each one of said plurality of block is completed written..." should be replace with -... when writing of each one of said plurality of block is written to one of the first or second ports...-.

In claim 12, line 7 "...a plurality of blocks of storage in a first memory in the memory device..." should be replace with -...a plurality of blocks of storage in the memory device...-.

In claim 12, line 15, "...if the CRC engine determines that an end one of said plurality of blocks..." should be replace with -...when the CRC engine determines that an end one of said plurality of blocks...-.

In claim 12, line 32, "...using said CRC engine to computer..." should be replace with -... using said CRC engine to compute...-.

In claim 12, lines 36-37, "...and if said second cyclical redundancy code corresponding to the given block is equal to..." should be replace with -...and when said second cyclical redundancy code corresponding to the given block is equal to...-.

In claim 12, line 38, "...tenth writing said given block to said second port..." should be replace with -...tenth instructions for writing said given block to said second port....-

In claim 15, line 3, "...receiving new data on the second port..." should be replace with -...receiving new data on said selected second port....-

In claim 15, line 12, "...storing in a CRC memory..." should be replace with -...storing in the CRC memory....-

IV. DISTINGUISHING FEATURES RECITED IN THE CLAIMS

ALLOWABLE SUBJECT MATTER

Claims 1-5, 7-10 and 12-16 are allowed.

The following is an Examiner's Statement of Reasons for Allowance, See MPEP 1302.14:

The primary reasons for allowance of claim 1 in the instant application is the combination with the inclusion in the claim that there are "...first and second protocols that use different block sizes or unblock data ... connecting a protocol interface device between a first device that uses the first protocol and a second device that uses the second protocol ... when the CRC engine determines that an end one of said plurality of blocks that includes an end of said transfer length is not full of data, adding padding ... until said end of said plurality of blocks is

complete ... as said data is being written to each one of said plurality of blocks: calculating, by said CRC engine a running cyclical redundancy code for each of said plurality of blocks by calculating an intermediate cyclical redundancy code after each byte of said data is written to each one of the plurality of blocks; after each intermediate cyclical redundancy code is calculated: storing, in a CRC memory that is included in the protocol interface device, said intermediate cyclical redundancy code along with information that identifies said first port, the CRC memory being separate from but connected to said CRC engine; when writing to each one of said plurality of blocks is completed, storing, for each one of said plurality of blocks, a final value of said running cyclical redundancy code that was calculated for each one of said plurality of blocks as a first cyclical redundancy code in a second memory in said memory device; and when said data is to be written to a second port of the protocol interface device: using said CRC engine to compute a second cyclical redundancy code for each of said plurality of blocks; comparing, using a comparator that is included in the protocol interface device and coupled to the CRC engine, said second cyclical redundancy code corresponding to a given block to said first cyclical redundancy code corresponding to said given block; and when said second cyclical redundancy code corresponding to the given block is equal to said first cyclical redundancy code corresponding to said given block, writing said given block to said second port. " The prior art of record including the disclosures of O'Grady et al. (US Patent 6,757,791), Jaquette et al. (US Patent 6,009,547) and Fish et al. (US Patent 4,241,420)

neither anticipates nor renders obvious the above recited combination. Because claims 2-5 and 15 depend directly/indirectly on claim 1, these claims are considered allowable for at least the same reasons noted above.

The primary reasons for allowance of claim 7 in the instant application is the combination with the inclusion in the claim that there are "...two protocols, at least one of which does not utilize blocks ... a cyclical redundancy code (CRC) engine connected to be selectively connected to one of said first port and said second port ... when said CRC engine determines that an end one of said plurality of blocks that includes an end of said transfer length is not full of data, padding being added to said end one of said plurality of blocks until said end of said plurality of blocks is complete ... said cyclical redundancy code engine calculating a running cyclical redundancy code for each one of said plurality of blocks as data is written to each one of said plurality of blocks by calculating an intermediate cyclical redundancy code after each byte of said data is written to each one of the plurality of blocks; a CRC memory for, after each intermediate cyclical redundancy code is calculated, storing said intermediate cyclical redundancy code along with information that identifies one of the first or second ports through which said data was received; a second random access memory connected to said cyclical redundancy code engine for storing, for each one of said plurality of blocks, a final value of said running cyclical redundancy code that was calculated for each one of said plurality of blocks as a first cyclical

redundancy code when writing to each one of said plurality of blocks is completed; and a comparator connected to compare a second cyclical redundancy code calculated for each one of said plurality of blocks with said first cyclical redundancy code calculated when writing of each one of said plurality of block is written to one of the first or second ports; whereby the data passed through said device is protected by a cyclical redundancy code." The prior art of record including the disclosures of O'Grady et al. (US Patent 6,757,791), Jaquette et al. (US Patent 6,009,547), Fish et al. (US Patent 4,241,420) and Malakapalli et al. (US Patent 6,467,060) neither anticipates nor renders obvious the above recited combination. Because claims 8-10 and 16 depend directly on claim 7, these claims are considered allowable for at least the same reasons noted above.

The primary reasons for allowance of claim 12 in the instant application is the combination with the inclusion in the claim that there are "...a protocol interface device connected between a first device that uses the first protocol and a second device that uses the second protocol ... when the CRC engine determines that an end one of said plurality of blocks that includes an end of said transfer length is not full of data, fourth instructions for adding padding ... until said end one of said plurality of blocks is complete ... fifth instructions for calculating, by the CRC engine, a running first cyclical redundancy code for each of said plurality of blocks as data is being written to each one of said plurality of blocks by calculating an intermediate cyclical redundancy code after each byte of said data

is written to each one of the plurality of blocks; after each intermediate cyclical redundancy code is calculated: sixth instructions for storing, in a CRC memory that is included in the protocol interface device, said intermediate cyclical redundancy code along with information that identifies said first port, the CRC memory being separate from but connected to said CRC engine; seventh instructions for when writing to each one of said plurality of blocks is completed, storing, for each one of said plurality of blocks, a final value of said running cyclical redundancy code that was calculated for each one of said plurality of blocks as a first cyclical redundancy code in a second memory in said memory device; and when said data is written to a second port of the protocol interface device: eighth instructions for using said CRC engine to compute a second cyclical redundancy code for each of said blocks of said plurality of blocks; ninth instructions for comparing, using a comparator that is included in the protocol interface device and coupled to the CRC engine, said second cyclical redundancy code corresponding to a given block to said first cyclical redundancy code corresponding to said given block; and when said second cyclical redundancy code corresponding to the given block is equal to said first cyclical redundancy code corresponding to said given block, tenth instructions for writing said given block to said second port." The prior art of record including the disclosures of O'Grady et al. (US Patent 6,757,791), Jaquette et al. (US Patent 6,009,547) and Fish et al. (US Patent 4,241,420) neither anticipates nor renders obvious the above recited

combination. Because claims 13-14 depend directly on claim 12, these claims are considered allowable for at least the same reasons noted above.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

V. CLOSING COMMENTS

Conclusion

DIRECTION OF FUTURE CORRESPONDENCES

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chun-Kuan (Mike) Lee whose telephone number is (571) 272-0671. The examiner can normally be reached on 8AM to 5PM.

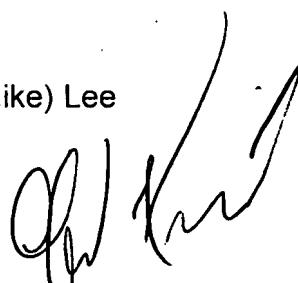
IMPORTANT NOTE

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alford Kindred can be reached on (571) 272-4037. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

September 04, 2007

Chun-Kuan (Mike) Lee
Examiner
Art Unit 2181



ALFORD KINDRED
PRIMARY EXAMINER